REMARKS

Independent claims 1, 6 and 7, and dependent claims 3 and 5 are rejected under 35 U.S.C. 103(a) as unpatentable over U.S. Patent 5,694,593 ("Baclawski") in view of U.S. Patent 6,493,709 ("Aiken"). Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as unpatentable over Baclawski in view of Aiken and further in view of U.S. Patent 5,884,303 ("Brown"). In comparison with the rejections in the first Office action, the present Office action relies in addition on Aiken. Applicant respectfully disagrees with the rejections for the following reasons.

As stated in claim 1 of the present application, for example, the invention involves handling queries that include two or more data fragments. The other independent claims in the present application, claims 4, 6 and 7, have similar limitations. Data fragments are also referred to as "text fragments."[1] Examples of data or text fragments in a query include words or groups of words.[2] Data is searched to find a match with the data fragments of the query, and, more particularly, to locate a specific portion of the data referred to as a "minimal portion," as claimed.

Baclawski and Brown. Baclawski and Brown concern searching, but they both address a problem that is different than what is claimed in the present application. Baclawski and Brown concern searching in parallel in multiple *nodes or files*. They teach about issues that arise about "fragments" due searching that is conducted in parallel.

More specifically, the fragmenting taught by Baclawski is for a process of hash coding, which is a well-known process for providing rapid access to data items distinguished by a key.[3] That is, Baclawski teaches that hash coding is applied to the search query and the resulting hash value is used as a sort of signature or index. The search query at least initially looks for the signature generated from the hashing instead of looking for the original search terms, as an efficient way to search multiple nodes or files in parallel. The issue of fragmenting arises in Brown's teaching because a file being queried may be in a logical volume that is mapped to "fragments," wherein the fragments are stored on respective disk drives.[4] These teachings of Baclawski and Brown do not relate to the present invention, as claimed, which concerns processing a search query that has "fragments expected to be contained within said data." This

[1] Page 5, line 26 through page 6, line 2.
[2] Page 6, line 26 through page 7, line 5 (for example, "her cat" and "green").
[3] Baclawski, col. 2, lines 3-11; www. foldoc.org (definition of "hash coding").
[4] Brown, col. 3, lines 37-41.

claim language has the clear sense of "fragments" meaning *search terms*, not fragments for hash coding or file fragments that map to a logical volume. [5]

The Office action implies that there is motivation to combine Aiken and Baclawski, and contends that Aiken teaches about identifying a minimal portion of data that contains matches with all of the data fragments in a search query, wherein at least one of the data fragments appears only once in the minimal portion. Applicant respectfully disagrees. Even aside from any teaching by Aiken, since Baclawski and Brown do not relate to the present invention, as explained above, there is no motivation to combine either of them with a reference that does relate to searching for multiple search terms.

Aiken. The Office action provides little substantial guidance about how the teachings of Aiken suggest what is claimed in the present invention, other than pointing to a certain passage in Aiken. However, Applicant has carefully reviewed Aiken and concludes that Aiken does not teach or suggest the claimed features of the present invention that the Office action relies upon for the rejection.

Aiken concerns comparing entire documents, such as for the purpose of deciding whether matching documents can be deleted from storage in a system to free up storage for other uses.[6] Aiken teaches that the documents are transformed into strings, such as by removing capitalization and white space, etc.[7] A hashing function is performed on the strings, which generates numerous hash values and position indicators for the many substrings.[8] The hash values for a set of documents are compared to a target set of documents and some of the documents are selected as a "cluster" for further comparison.[9] For documents in a cluster, sequences of matching substrings are "coalesced" into passages.[10] Overlapping pairs of passages are then split up into smaller, non-overlapping passages.[11] Certain additional processing is performed on passages and then passages that match in a set of documents are found, identifiers are assigned to the passages and the passages are presented to the user.[12]

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[5] Page 2, lines 4 through 11.
[6] Col. 3, lines 8 - 23.
[7] Col. 5, lines 36 - 52.
[8] Col. 6, lines 31 - col. 7, line 26.
[9] Col. 8, lines 24 - 33.
[10] FIG. 5 (step 506); col. 13, line 1 - col. 14, line 9.
[11] FIG. 5 (step 508); col. 14, lines 10 - 58.
[12] FIG. 5 (steps 510 - 516); col. 14, line 59 - col. 16, line 28.

Based on Applicant's review of all of Aiken's teachings, with particular attention to the passage relied upon in the Office action, Applicant concludes that Aiken's teachings do not even suggest identifying a minimal portion of data that contains matches with all of the data fragments in a search query, wherein at least one of the data fragments appears only once in the minimal portion, as claimed in the present application. The passage in Aiken relied upon in the Office action for the rejection refers to a "minimal sequence," which Applicant surmises may have given rise to reliance upon this passage. However, the "minimal sequence" of Aiken is not like the "minimal portion" of the present invention.

The term "minimal portion" in the present application and claims has a specifically stated meaning.[13] This means, among other things, that some, but not all, of the data fragments in the query can appear more than once in the minimal portion of data. At least one data fragment must appear only once in the portion, or else the portion is not "minimal." In the reply to the first Office action, claims 1, 6 and 7 were amended to more clearly indicate the meaning of "minimal portion," stating that "at least one of the data fragments appears only once in the minimal portion." Claim 4 already had language that sets out steps for a query that result in defining a "minimal portion," as that term is defined in the other independent claims.[14]

As applied to an example, the claimed method for searching data including the fragments "ABBAACCA" locates a portion of the data identified by a search query consisting of the three data fragments "A," "B" and "C."[15] The method, as stated in claim 1, includes identifying a minimal portion of the data that contains matches with all of the data fragments, wherein at least one of the data fragments appears only once in the minimal portion. For the data including the fragments "ABBAACCA" this yields the minimal data portion "BAAC," in which there is a complete set of the three data fragments "A," "B" and "C," and in which the data fragments "B" and "C" appear only once.

In contrast, Aiken teaches that an "edit difference" can be determined in a comparison of a set of documents and that from this edit difference the maximal matching passage for the set of

[13] Page 4, lines 11 through 14 ("... a portion of data containing only one complete set of the data fragments ... but ... at least one of the data fragments will appear only once.").

[14] See pages 11, line 16 - page 23, line 21 (setting out an example application of this procedure, resulting in a minimal portion of text). Note that the resulting "minimal portion" of text set out on page 22, lines 8-10, is not merely the union of the six fragments in the search query. For example, the minimal portion has two instances of search term frag[3], "and other."

[15] Page 4, lines 15 through 18.

documents can be derived. Aiken teaches that the edit difference is the length of a "minimal sequence" of insertions, deletions and substitutions that transforms one document, i.e., string, to another. A "minimal sequence" of data that contains insertions, deletions and substitutions for transforming one string to another string, as taught by Aiken, is not like a "minimal portion" of data that contains matches with all of the data fragments, e.g., strings, in a search query, wherein at least one of the data strings appears only once in the minimal portion, as claimed in the present application.

Since the Office action provides little substantial guidance about its assertion that teachings of Aiken suggest what is claimed in the present invention, Applicant is not certain whether Aiken's teaching about a minimal sequence is the basis for the rejection. Applicant notes also that in proximity to the term "minimal sequence" the cited passage from Aiken uses strings of alphabetical characters "HFLKXXAB" and "ABZFLKW" to illustrate a feature of finding a maximum length passage shared by a set of documents, which in the illustrated instance is "FLK." Applicant wonders if perhaps this may have given rise to reliance upon this passage, since the present application discloses the example set out herein above in which a string of characters "ABBAACCA" is used to illustrate the claimed "minimal portion," which in the illustrated instance is "BAAC" for the search query "A," "B" and "C." However, Aiken's teaching about comparing passages in two documents to find a maximum length passage that matches, does not even suggest identifying a minimal portion of data that contains matches with all of the data fragments in a search query, wherein at least one of the data fragments appears only once in the minimal portion, as claimed in the present application.

To illustrate the difference, consider the following example. Suppose two documents consist of the following strings:

String 1	String 2
K	F
I	N
I	Q
R	A
Q	H
R	F
R	D
H	H
Q	Q
Q	Q
H	H
H	H
Q	Q

For these two strings, set out below is: a) the minimal portion of data for string 1, that contains matches with all of the data fragments in a search query "HQR", for example, wherein at least one of the data fragments appears only once in the minimal portion, and b) the maximum length passage that matches for the two strings. Note that string 2 has no "minimal portion," as defined by the present claims, for the query "HQR," since string 2 has no "R." Note also that string 2 has no "minimal portion" for a query consisting of string 1. Note also that the maximum length passage that matches for the two strings cannot be a minimal portion for a query "HQ", for example, as defined in the present claims, since neither the data fragment "H" nor "Q" appear only once in the passage.

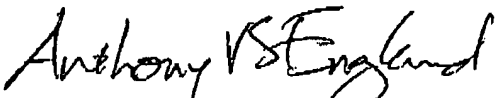
String 1	a) Minimal Portion for String 1 and Search Query: QRH	String 2	b) Max Length Shared String
K		F	
I		N	
I		Q	
R		A	
Q	Q	H	
R	R	F	
R	R	D	
H	H	H	H
Q		Q	Q
Q		Q	Q
H		H	H
H		H	H
Q		Q	Q

For all of the above reasons, Aiken's teachings do not suggest what is claimed in the present invention.

REQUESTED ACTION

Applicant contends that the invention as claimed in accordance with amendments previously presented is patentably distinct, and hereby requests that Examiner grant allowance and prompt passage of the application to issuance.

Respectfully submitted,



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